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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,196	10/10/2001	Doyle E. Bennett	4023/P1/480001	9636
32588	7590	04/21/2004		
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050				
			EXAMINER ELEY, TIMOTHY V	
			ART UNIT 3724	PAPER NUMBER 9
DATE MAILED: 04/21/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,196

Applicant(s)

BENNETT ET AL.

Examiner

Timothy V Eley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4.6</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- a. "a"(page 8, line 21, first occurrence) should be deleted.
 - b. "can be is"(page 8, line 32) is awkward.
 - c. "wear"(page 8, line 33) should be --wears--.
 - d. "can adds"(page 9, line 3) is awkward.
 - e. "TL"(page 9, line 7) is not seen in the drawings.
 - f. Applicant should check the numerals recited on page 9, lines 15-26, since they do not appear to be consistent with the drawings.
 - g. "(C)omposites"(page 10, line 4) is awkward.
 - h. Numeral "306"(page 10, line 11) should be --302--.
 - i. On page 11, line 26, applicant refers to a carrier head in Fig. 4, however, Fig. 4 is the polishing pad/platen.
 - j. "on polishing pad"(page 11, line 32) is awkward.
 - k. "(F)ig. 3A(page 12, line 32; page 13, line 3) should be --3--.
- Appropriate correction is required.

Claim Objections

2. Claims 6,9,25, and 26 are objected to because of the following informalities:

- a. "the boss . . . screw"(claim 6, line 1) does not appear to adequately recite the invention. Language similar to --the at least one boss surrounds the at least one screw-- is recommended.

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b. "thermoplastic"(claim 9, line 2) is misspelled.

c. --a-- should be inserted before "plurality"(claim 25, line 4).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C.

112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-6, and 14-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. "the retaining ring"(claim 4, line 2; claim 18, line 3; and claim 19, line 2) and "the portion"(claim 14, line 5; and claim 21, line 5) both lack proper antecedent basis since they were not properly earlier referred to.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international

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application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3,12,14-16,17,21, and 29 are rejected under 35

U.S.C. 102(e) as being anticipated by Wang(6,273,803) et al.

a. Wang et al discloses a carrier head for chemical mechanical polishing, comprising: a base(11) having at least a portion(16) formed of a polymer; a mounting assembly connected to the base having a surface for contacting a substrate; and a retainer(3) secured to the portion of the base to prevent the substrate from moving along the surface. See figure 11.

b. Regarding claim 2, the portion of the base is a ring-shaped body extended around a perimeter of the base.

c. Regarding claims 3 and 12, the portion 4b of element 4 functions as a dampening material.

d. Regarding claims 14 and 15, the embodiment of figure 4 comprises a dampening material which includes polyvinylchloride thermoplastic. See column 8, lines 35-37.

e. Regarding claims 21 and 29, the retainer(3) includes an upper portion configured to be secured to the base; and a bottom portion that includes either polyethylene terephthalate, or polyether ether ketone. See column 2, lines 48-55.

7. Claims 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubo(5,645,474) et al.

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a. Kubo et al disclose an article(4,5, or 6)for attachment to a carrier head, comprising: a generally flat annular body configured to be detachably secured at an outer perimeter of a carrier head, the annular body formed of a dampening material and having a plurality of apertures therethrough. See column 6, lines 1-32. Note, the materials used to make elements 4,5, or 6, inherently include a plurality of pores(apertures) therethrough.

b. Regarding claim 28, the dampening material includes at least one of polyurethane and polyvinylchloride thermoplastic. See column 6, line 20.

c. Regarding claim 29, Kubo et al discloses a retaining ring(4) for a chemical mechanical polishing head, comprising: an upper portion configured to be secured to a base; a bottom portion that includes an imidized thermoset polyimide. See column 1, lines 1-4.

8. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Gleason(6,390,904) et al.

a. Gleason et al discloses a retaining ring(30) for a chemical mechanical polishing head, comprising: an upper portion configured to be secured to a base; and a bottom portion that includes polyether ether ketone. See column 6, lines 36-39.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-6,9,11,18,19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al.

a. Wang et al is explained above.

b. Wang et al does not disclose the ring-shaped body including at least one boss extending to contact the retaining ring and at least one screw extending whereby the at least one boss surrounds the at least one screw and extends into the retaining ring.

However, Wang et al discloses in figure 10, the use of a boss for reinforcement in a retaining ring used to contact an element next to it, and the boss surrounding a screw which secures the retaining ring to the base.

c. Therefore, exactly where a boss is located would have been obvious to one having ordinary skill in the art at the time the invention was made as long as the boss is used to surround the screw(15,15a') for reinforcement.

d. Wang et al does not disclose that entire base(11) is formed from the polymer.

e. However, to make the base from the same material as the element 16 and to make the base and element 16 one piece would have been obvious to one having ordinary skill in the art at the time the invention was made since this would render the carrier

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head sturdier and eliminate an additional part of the carrier head.

f. Regarding claims 9, Wang et al does not disclose using polyvinylchloride thermoplastic for the dampening material in the embodiment of figure 11. However, in the embodiment of figure 12, Wang et al discloses using polyvinylchloride thermoplastic for the material of a sheet(17) placed above the sheet 4.

g. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to place a sheet(17) made from polyvinylchloride thermoplastic above the sheet 4 for reinforcement thereof. Thus in such a modified embodiment, the sheet would then function as a dampening material made from polyvinylchloride thermoplastic.

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gleason et al in view of Yamamoto(5,740,893).

a. Gleason et al is explained above.

b. Gleason et al does not disclose a bottom portion of the retaining ring further including at least one of graphite and carbon fibers. However, Gleason et al discloses that it is well known to used carbon-reinforced material for a retaining ring. See column 6, lines 36-39.

c. Yamamoto discloses that it is well known to use graphite or carbon fibers for reinforcement of resin material. See column 7, lines 60-end.

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d. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the retaining ring of Gleason et al by using carbon fibers as the reinforcing carbon as taught by Yamamoto.

12. Claims 7,8,10,13,20,22-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al in view of Yamamoto(5,740,893).

a. Wang et al is explained above.

b. Wang et al does not disclose the portion 16 being made from a polymer which includes polyphenylenesulfide, carbon fibers and polytetrafluoroethylene or that the bottom portion of the retaining ring is made from carbon, graphite or carbon fibers.

c. Yamamoto discloses using a polymer member 3d which may include polyphenylenesulfide, carbon fibers and polytetrafluoroethylene thereby providing for a durable polymer member. Also, Yamamoto teaches that carbon, graphite, and carbon fibers may be used for reinforcing a resin. See column 7, lines 21-end.

d. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the portion 16 of Wang et al by making it from polyphenylenesulfide, carbon fibers and polytetrafluoroethylene to provide durability as taught by Yamamoto.

e. The exact composition of polyphenylenesulfide, carbon fibers and polytetrafluoroethylene would have been an obvious matter of choice to one having ordinary skill in the art since such would

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depend upon the intended use of the apparatus. Also, applicant has not stated that the exact composition provides any stated advantage over the prior art.

f. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include carbon, graphite, or carbon fibers in the bottom portion of the retaining ring of Wang et al to provide for reinforcement as taught by Yamamoto.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

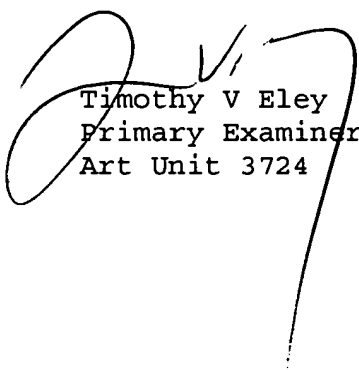
a. The cited prior art discloses carrier heads having dampening material.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V Eley whose telephone number is 703-308-1824. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N Shoap can be reached on 703-308-1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy V Eley
Primary Examiner
Art Unit 3724

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